

Hazardous Materials and Terrorist Incident Response Curriculum Guidelines

Emergency Medical Service/ Hazardous Materials/WMD Advanced Life Support (ALS) Responder

Response
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Considerations

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Operations

Core

Mission-
Specific

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Specialist
Employee

Hazardous
Materials
Specialist

Incident
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Safety
Officer

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Introduction

Emergency Medical Service/Hazardous Materials/WMD Advanced Life Support (EMS/HM ALS) Responders shall be certified at the EMT-B level or higher, shall meet all the competencies for EMS/HM BLS Responder as defined in NFPA 473 and in these guidelines, and shall meet all the competencies recommended in NFPA 473 and in this section for EMS/HM ALS Responder. In addition, EMS/HM ALS responders shall meet the training requirements of local occupational health and safety agencies, OSHA, and EPA, and emergency medical technician A certification standards, as appropriate for or required by their jurisdiction.

Decontamination of patients or rescue personnel is a critical task. These individuals have come in contact with a foreign agent that will cause either short- or long-term medical problems. Whether the ramifications of contact with the foreign agent are long-term, chronic or acute, the need to have medically trained personnel, emergency medical technicians, and paramedics conducting decontamination procedures is imperative and self-explanatory. Using certified emergency medical technicians and paramedics trained in hazardous materials to conduct the decontamination operation will result in a higher level of care and the ability to provide effective and efficient patient assessment and prehospital care that will benefit all who are involved with these types of operations.

EMS/HM ALS Responders are expected to be able to analyze and determine the magnitude of problem areas at hazardous materials incidents and at criminal and terrorist incidents involving hazardous materials or related weapons of mass destruction. They also are expected to plan a response and provide the appropriate level of emergency medical care and decontamination to persons involved in such incidents, provide medical support to hazardous materials response personnel, and implement and terminate the response.

Definition

EMS/HM ALS Responders are persons who, in the course of their normal activities, may be called on to perform patient care and decontamination activities in the warm zone (the area where personnel and equipment decontamination and hot zone support take place) at hazardous materials incidents or at criminal and terrorist incidents involving hazardous materials or related weapons of mass destruction. EMS/HM ALS Responders are called on to provide care to individuals who still pose a significant risk of secondary contamination. In addition, personnel at this level shall be able to coordinate EMS activities at a hazardous materials incident and provide medical support to and decontamination of hazardous materials response personnel.

Training Audience

EMS/HM ALS Responders may be public-sector or private-sector individuals charged with the responsibility of providing and coordinating EMS services at the scene of a hazardous materials incident or at the scene of a criminal or terrorist incident involving hazardous materials or related weapons of mass destruction. They include selected emergency medical technicians and paramedics as well as members of industrial fire brigades who are assigned patient care responsibility at such incidents on-site or off-site.

Related Health, Safety, and Performance Standards

- OSHA 29 CFR 1910.120
- EPA 40 CFR 311
- NFPA 472
- NFPA 473
- NFPA 1561 Standard on Fire Department Incident Management System
- U.S. Fire Administration Emergency Incident Rehabilitation Guide, FA-114

Recognized DOT, State, regional, or local training curricula should constitute the entry-level EMS preparation for continuing hazardous materials training. When a hazardous materials incident or a hazardous materials-related criminal or terrorist occurs, all EMS basic life-support-provider personnel responding should have been trained to the emergency medical technician B level or equivalent.

Methodology Recommendations

EMS/HM ALS Responder training should include a combination of traditional classroom lecture with small-group activities, field exercises involving working with the incident command structure in simulated emergencies, and hands-on psychomotor skill training. Content instruction should focus on contamination hazards, decontamination procedures, health monitoring treatment procedures, and incident scene roles and responsibilities. Trainee activities should focus on assessment and analysis of hazards and determination of appropriate procedures. Skill training should focus on implementing decontamination and patient care procedures and the use of appropriate personal protective equipment. Written and practical examinations are highly recommended to measure achievement in initial training and refresher programs and to support the employer's responsibility that all EMS/HM ALS Responder personnel be trained to competency before being called on to perform EMS/HM ALS functions at emergencies. Table-top and field exercises should focus on acting out incident scene roles and on implementing procedures in a field environment. Refresher training should be conducted on a yearly basis and should focus on technical updates, updates on changes in response protocols and SOP's, and renewal of individual skills in decontamination, patient treatment, and use of personal protective equipment.

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Summary: Emergency Medical Services/Hazardous Materials Level 2 Responder

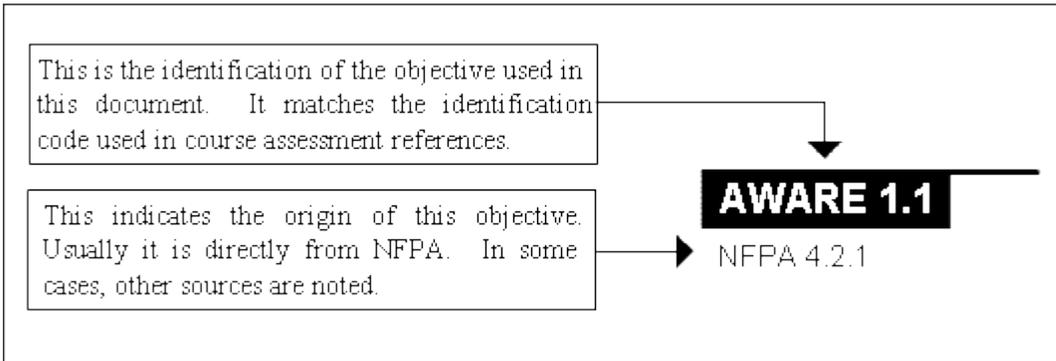
Audience:	Moderate size audience. Paramedics and emergency medical technicians who may be called upon to conduct decontamination and patient care in the warm and hot zone of a hazmat incident or a hazmat-related criminal or terrorist incident scene.
Pre-Req:	Awareness training. EMS/HM BLS Responder training. EMT-B certification
Training:	Classroom, physical skills lab, and simulator/field instruction, with emphasis on decision making and treatment skills. Competencies: <ul style="list-style-type: none">• Assessing incident scene hazards and risks of patient secondary contamination.• Incident scene response planning, including determining personal protective equipment needs and defining roles and responsibilities of the EMS/HM ALS responder.• Ability to perform EMS/HM ALS patient decontamination and treatment in the warm zone at an incident scene.• Ability to perform post-incident EMS reporting, documentation, and follow-up.
Refresher:	Technical updates. Changes in response protocols and incident command system SOP's. Renewal and retesting of incident scene decision making and warm zone decontamination and treatment skills.

Recommended Training Objectives

The following training objectives are recommended for the Emergency Medical Service/Hazardous Materials ALS Responder. The primary source for this material is NFPA 473: *Standard for Competencies for EMS Personnel Responding to Hazardous Materials/Weapons of Mass Destruction Incidents*, Chapter 5: *Competencies for Hazardous Materials/WMD Advanced Life Support (ALS) Responder*.

In general, these recommended objectives compare in scope and concept to the general requirements of OSHA that all responding personnel be properly trained to perform their assigned roles in a hazardous materials emergency.

Objective Identification Legend



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Hazardous Materials Specialist

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ALS Responder

ALS 1. - Analyzing the Incident

ALS - 1.1.

NFPA 473 5.2.1

Surveying Hazardous Materials/WMD Incidents

Given scenarios of hazardous materials/WMD incidents, the ALS level responder shall assess the nature and severity of the incident as it relates to anticipated or actual EMS responsibilities at the scene.

ALS - 1.1.1.

NFPA 473 5.2.1.1

Given examples of the following marked transport vehicles (and their corresponding shipping papers or identification systems) that can be involved in hazardous materials/WMD incidents, the ALS level responder shall evaluate the general health risks based on the physical and chemical properties of the anticipated contents:

1. Highway transport vehicles, including cargo tanks
2. Intermodal equipment, including tank containers
3. Rail transport vehicles, including tank cars

ALS - 1.1.2.

NFPA 473 5.2.1.2(1)

Given examples of various hazardous materials/WMD incidents at fixed facilities, the ALS level responder shall demonstrate the ability to identify a variety of containers and their markings, including bulk and nonbulk packages and containers, drums, underground and aboveground storage tanks, specialized storage tanks, or any other specialized containers found in the AHJ's geographic area, and evaluate the general health risks based on the physical and chemical properties of the anticipated contents.

ALS - 1.1.3.

NFPA 473 5.2.1.2(2)

Given examples of various hazardous materials/WMD incidents at fixed facilities, the ALS level responder shall demonstrate the ability to identify the following job functions of health-related resource personnel available at fixed facility hazardous materials/WMD incidents:

1. Environmental health and safety representatives
2. Radiation safety officers
3. Occupational physicians and nurses
4. Site emergency response teams
5. Specialized experts

ALS - 1.1.4.
 NFPA 473 5.2.1.3

The ALS level responder shall identify two ways to obtain a material safety data sheet (MSDS) at a hazardous materials/WMD incident and shall demonstrate the ability to identify the following health-related information:

1. Proper chemical name or synonyms
2. Physical and chemical properties
3. Health hazards of the material
4. Signs and symptoms of exposure
5. Routes of entry
6. Permissible exposure limits
7. Emergency medical procedures or recommendations
8. Responsible party contact

ALS - 1.1.5.
 NFPA 473 5.2.1.4

Given scenarios at various fixed facilities, transportation incidents, pipeline release scenarios, maritime incidents, or any other unexpected hazardous materials/WMD incident, the ALS level responder, working within an incident command system must evaluate the off-site consequences of the release, based on the physical and chemical nature of the released substance, and the prevailing environmental factors to determine the need to evacuate or shelter in place affected persons.

ALS - 1.1.6.
 NFPA 473 5.2.1.5

Given examples of the following biological threat agents, the ALS level responder shall define the various types of biological threat agents, including the signs and symptoms of exposure, mechanism of toxicity, incubation periods, possible disease patterns, and likely means of dissemination:

1. Variola virus (smallpox)
2. Botulinum toxin
3. E. coli O157:H7
4. Ricin toxin
5. B. anthracis (anthrax)
6. Venezuelan equine encephalitis virus
7. Rickettsia
8. Yersinia pestis (plague)
9. Tularemia
10. Viral hemorrhagic fever
11. Other CDC Category A-listed organism or threat

ALS - 1.1.7.
 NFPA 473 5.2.1.6*

Given examples of various types of hazardous materials/WMD incidents involving toxic industrial chemicals (TICs), toxic industrial materials (TIMs), blister agents, blood agents, nerve agents, choking agents and irritants, the ALS level responder shall determine the general health risks to patients exposed to those substances and identify those patients who may be candidates for antidotes.

ALS - 1.1.8.
 NFPA 473 5.2.1.7*

Given examples of hazardous materials/WMD found at illicit laboratories, the ALS level responder shall identify general health hazards associated with the chemical substances that are expected to be encountered.

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ALS - 1.1.9.

NFPA 473 5.2.1.8

Given examples of a hazardous materials/WMD incident involving radioactive materials, including radiological dispersion devices, the ALS level responder shall determine the probable health risks and potential patient outcomes.

ALS - 1.1.9.1.

NFPA 473 5.2.1.8(1)

Determine the types of radiation (alpha, beta, gamma, and neutron) and potential health effects of each.

ALS - 1.1.9.2.

NFPA 473 5.2.1.8(2)

Determine the most likely exposure pathways for a given radiation exposure, including inhalation, ingestion, and direct skin exposure.

ALS - 1.1.9.3.

NFPA 473 5.2.1.8(3)

Describe how the potential for cross contamination differs for electromagnetic waves compared to radioactive solids, liquids, or vapors.

ALS - 1.1.9.4.

NFPA 473 5.2.1.8(4)

Identify priorities for decontamination in scenarios involving radioactive materials.

ALS - 1.1.9.5.

NFPA 473 5.2.1.8(5)

Describe the manner in which acute medical illness or traumatic injury can influence decisions about decontamination and patient transport.

ALS - 1.1.10.

NFPA 473 5.2.1.9

Given examples of typical labels found on pesticide containers, the ALS level responder shall define the following terms:

- Pesticide name
- Pesticide classification (e.g., insecticide, rodenticide, organophosphate, carbamate, organochlorine).
- Environmental Protection Agency (EPA) registration number
- Manufacturer name
- Ingredients broken down by percentage
- Cautionary statement (e.g., Danger, Warning, Caution, Keep from Waterways)
- Strength and concentration
- Treatment information

ALS - 1.2.	Surveying Hazardous Materials/WMD Incidents
NFPA 473 5.2.2(1)-(11)	<p>Collecting and Interpreting Hazard and Response Information. The ALS level responder shall demonstrate the ability to utilize various reference sources at a hazardous materials/WMD incident, including the following:</p> <ul style="list-style-type: none"> • MSDS • CHEMTREC/CANUTEC/SETIQ • Regional poison control centers • DOT Emergency Response Guidebook • NFPA 704, Standard System for the Identification of the Hazards of Materials for Emergency Response identification system. • Hazardous Materials Information System (HMIS) • Local, state, federal, and provincial authorities • Shipper/manufacturer contacts • Agency for Toxic Substances and Disease Registry (ATSDR) medical management guidelines • Medical toxicologists • Electronic databases

ALS - 1.3.	Identifying Secondary Devices.
NFPA 473 5.2.2.1	<p>Given scenarios involving hazardous materials/WMD, the ALS level responders shall describe the importance of evaluating the scene for secondary devices prior to rendering patient care.</p>

ALS - 1.3.1.	Evaluate the scene for likely areas where secondary devices can be placed.
NFPA 473 5.2.2.1(1)	

ALS - 1.3.2.	Visually scan operating areas for a secondary device before providing patient care.
NFPA 473 5.2.2.1(2)	

ALS - 1.3.3.	Avoid touching or moving anything that can conceal an explosive device.
NFPA 473 5.2.2.1(3)	

ALS - 1.3.4.	Designate and enforce scene control zones.
NFPA 473 5.2.2.1(4)	

ALS - 1.3.5.	Evacuate victims, other responders, and nonessential personnel as quickly and safely as possible.
NFPA 473 5.2.2.1(5)	

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ALS 2. - Planning the Response

ALS - 2.1.

NFPA 473 5.3.1.1

Identifying High-Risk Areas for Potential Exposures

The ALS level responder, given an events calendar and pre-incident plans, which can include the local emergency planning committee plan as well as the agency's emergency response plan and SOPs, shall identify the venues for mass gatherings, industrial facilities, potential targets for terrorism, or any other locations where an accidental or intentional release of a harmful substance can pose an unreasonable health risk to any person within the local geographical area as determined by the AHJ.

ALS - 2.1.1.

NFPA 473 5.3.1.1(1)

Identify locations where hazardous materials/WMD are used, stored, or transported

ALS - 2.1.2.

NFPA 473 5.3.1.1(2)

Identify areas and locations presenting a potential for a high loss of life or rate of injury in the event of an accidental/intentional release of a hazardous materials/WMD substance.

ALS - 2.1.3.

NFPA 473 5.3.1.1(3)

Evaluate the geographic and environmental factors that can complicate a hazardous materials/WMD incident, including prevailing winds, water supply, vehicle and pedestrian traffic flow, ventilation systems, and other natural or man-made influences, including air and rail corridors.

ALS - 2.2.

NFPA 473 5.3.2.1

Determining the Capabilities of the Local Hospital Network.

The ALS level responder shall identify the methods and vehicles available to transport hazardous materials patients and shall determine the location and potential routes of travel to the following appropriate local and regional hospitals, based on patient need:

1. Adult trauma centers
2. Pediatric trauma centers
3. Adult burn centers
4. Pediatric burn centers
5. Hyperbaric chambers
6. Established field hospitals
7. Other specialty hospitals or medical centers

ALS - 2.2.1.

NFPA 473 5.3.2.2

Given a list of local receiving hospitals in the AHJ's geographic area, the ALS level responder shall describe the location and availability of hospital-based decontamination facilities.

<p>ALS - 2.2.2.</p>	<p>The ALS level responder shall describe the ALS protocols and SOPs developed by the AHJ and the prescribed role of medical control and poison control centers during mass casualty incidents, at hazardous materials/WMD incidents where exposures have occurred, and in the event of disrupted radio communications.</p>
<p>NFPA 473 5.3.2.3</p>	
<p>ALS - 2.2.3.</p>	<p>The ALS level responder shall identify the following mutual aid resources (hospital and non-hospital based) identified by the AHJ for the field management of multi-casualty incidents.</p> <p>Mass-casualty trailers with medical supplies Mass-decedent capability Regional decontamination units Replenishment of medical supplies during long-term incidents Locations and availability of mass-casualty antidotes for selected exposures, including but not limited to the following:</p> <ol style="list-style-type: none"> 1. Nerve agents and organophosphate pesticides 2. Biological agents and other toxins 3. Blood agents 4. Opiate exposures 5. Selected radiological exposures 6. Rehabilitation units for the EMS responders 7. Replacement transport units for those vehicles lost to mechanical trouble, collision, theft, and contamination.
<p>NFPA 473 5.3.2.4(1)-(5)</p>	
<p>ALS - 2.2.4.</p>	<p>The ALS level responder shall identify the special hazards associated with inbound and outbound air transportation of patients exposed to hazardous materials/WMD.</p>
<p>NFPA 473 5.3.2.5</p>	
<p>ALS - 2.2.5.</p>	<p>The ALS level responder shall describe the available medical information resources concerning hazardous materials toxicology and response.</p>
<p>NFPA 473 5.3.2.6</p>	
<p>ALS - 2.3.</p>	<p>Identifying Incident Communications</p>
<p>NFPA 473 5.3.3.1</p>	<p>The ALS level responder shall identify the components of the communication plan within the AHJ geographic area and determine that the EMS providers have the ability to communicate with other responders on the scene, with transport units, and with local hospitals</p>

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ALS - 2.3.1.

NFPA 473 5.3.3.2(1)-(13)

Given examples of various patient exposure scenarios, the ALS level responder shall describe the following information to be transmitted to the medical control or poison control center or the receiving hospital prior to arrival:

- The exact name of the substance(s) involved
- The physical and chemical properties of the substance(s) involved
- Number of victims being transported
- Age and sex of transported patients
- Patient condition and chief complaint
- Medical history
- Circumstances and history of the exposure, such as duration of exposure and primary route of exposure
- Vital signs, initial and current
- Symptoms described by the patient, initial and current
- Presence of associated injuries, such as burns and trauma
- Decontamination status
- Treatment rendered or in progress, including the effectiveness of antidotes administered
- Estimated time of arrival

ALS - 2.4.

NFPA 473 5.3.4

Identifying the Role of the ALS Level Responder

Given scenarios involving hazardous materials/WMD, the ALS level responder shall identify his or her role during hazardous materials/WMD incidents as specified in the emergency response plan and SOPs developed by the AHJ.

ALS - 2.4.1.

NFPA 473 5.3.4.1(1)

Describe the purpose, benefits, and elements of the incident command system as it relates to the ALS level responder.

ALS - 2.4.2.

NFPA 473 5.3.4.1(2)

Describe the typical incident command structure for the emergency medical component of a hazardous materials/WMD incident as specified in the emergency response plan and SOPs developed by the AHJ

ALS - 2.4.3.

NFPA 473 5.3.4.1(3)

Demonstrate the ability of the ALS level responder to function within the incident command system

ALS - 2.4.4.

NFPA 473 5.3.4.1(4)

Demonstrate the ability to implement an incident command system for a hazardous materials/WMD incident where an ICS does not currently exist.

ALS - 2.4.5.

NFPA 473 5.3.4.1(5)

Identify the procedures for requesting additional resources at a hazardous materials/WMD incident

<p>ALS - 2.4.6. NFPA 473 5.3.4.2</p>	<p>Describe the hazardous materials/WMD ALS responder's role in the hazardous materials/WMD response plan developed by the AHJ or identified in the local emergency response plan as follows:</p>
<p>ALS - 2.4.6.1. NFPA 473 5.3.4.2(1)</p>	<p>Determine the toxic effect of hazardous materials/WMD.</p>
<p>ALS - 2.4.6.2. NFPA 473 5.3.4.2(2)</p>	<p>Estimate the number of patients.</p>
<p>ALS - 2.4.6.3. NFPA 473 5.3.4.2(3)</p>	<p>Recognize and assess the presence and severity of symptoms.</p>
<p>ALS - 2.4.6.4. NFPA 473 5.3.4.2(4)</p>	<p>Assess the impact on the health care system.</p>
<p>ALS - 2.4.6.5. NFPA 473 5.3.4.2(5)</p>	<p>Perform appropriate patient monitoring as follows:</p> <ol style="list-style-type: none"> 1. Pulse oximetry 2. Cardiac monitor 3. End tidal CO2
<p>ALS - 2.4.6.6. NFPA 473 5.3.4.2(6)</p>	<p>Communicate pertinent information</p>
<p>ALS - 2.4.6.7. NFPA 473 5.3.4.2(7)</p>	<p>Estimate pharmacological need.</p>
<p>ALS - 2.4.6.8. NFPA 473 5.3.4.2(8)</p>	<p>Address threat potential for clinical latency.</p>
<p>ALS - 2.4.6.9. NFPA 473 5.3.4.2(9)</p>	<p>Estimate dosage – exposure.</p>
<p>ALS - 2.4.6.10. NFPA 473 5.3.4.2(10)</p>	<p>Estimate dosage – treatment</p>
<p>ALS - 2.4.6.11. NFPA 473 5.3.4.2(11)</p>	<p>Train in appropriate monitoring.</p>

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ALS - 2.5.

Supplemental Medical Resources.

NFPA 473 5.3.5

Given scenarios of various hazardous materials/WMD mass casualty incidents, the ALS level responder shall identify the supplemental medical resources available to the AHJ, including the following:

ALS - 2.5.1.

NFPA 473 5.3.5(1)

Describe the strategic national stockpile (SNS) program, including the following components:

1. Intent and goals of the SNS program
2. Procedures and requirements for deploying the SNS to a local jurisdiction
3. Typical supplies contained in 12-hour push package
4. Role of the technical advisory response unit (TARU)

ALS - 2.5.2.

Describe the metropolitan medical response system(MMRS) including the following components:

1. scope, intent, and goals of the MMRS
2. Capabilities and resources of the MMRS
3. Eight capability focus areas of the MMRS

ALS 3. - Implementing the Planned Response

ALS - 3.1.

NFPA 473 5.4.1

Determining the Nature of the Incident and Providing Medical Care.

The ALS level responder shall demonstrate the ability to provide emergency medical care to those patients exposed to hazardous materials/WMD by completing the following tasks:

ALS - 3.1.1.

NFPA 473 5.4.1(1)

The ALS level responder shall determine the physical state of the released substance and the environmental influences surrounding the release, as follows:

1. Solid
2. Liquid
3. Gas, vapor, dust, mist, aerosol

ALS - 3.1.2.

NFPA 473 5.4.1(2)*

The ALS level responder shall identify potential routes of exposure, and correlate those routes of exposure to the physical state of the released substance, to determine the origin of the illness or injury, as follows:

1. Inhalation
2. Absorption
3. Ingestion
4. Injection

ALS - 3.1.3.	The ALS level responder shall describe the potential routes of entry into the body, the common signs and symptoms of exposure, and the ALS treatment options approved by the AHJ (e.g., advanced airway management, drug therapy), including antidote administration where appropriate for exposure(s) to the following classification of substances:
NFPA 473 5.4.1(3)	
	<ol style="list-style-type: none"> 1. Corrosives 2. Pesticides 3. Chemical asphyxiants 4. Simple asphyxiants 5. Organic solvents 6. Nerve agents 7. Vesicants 8. Blood agents 9. Choking agents 10. Irritants (riot control agents) 11. Biological agents and toxins 12. Incapacitating agents 13. Radiological materials 14. Nitrogen compounds 15. Opiate compounds 16. Fluorine compounds 17. Phenolic compounds

ALS - 3.1.4.	The ALS level responder shall describe the basic toxicological principles relative to assessment and treatment of persons exposed to hazardous materials, including the following:
NFPA 473 5.4.1(4)	
	<ol style="list-style-type: none"> 1. Acute and delayed toxicological effects 2. Local and systemic effects 3. Dose-response relationship

ALS - 3.1.5.	Given examples of various hazardous substances, the ALS level responder shall define the basic toxicological terms as they relate to the treatment of an exposed patient, as follows:
NFPA 473 5.4.1(5)	
	<ol style="list-style-type: none"> 1. Threshold limit value – time weighted average (TLVTWA) 2. Lethal doses and concentrations, as follows: <ol style="list-style-type: none"> a. LD₁₀ b. LD₅₀ c. LD_{hi} d. LC₁₀ e. LC₅₀ f. LCh_i 3. Parts per million/parts per billion/parts per trillion (ppm/ppb/ppt) 4. Immediately dangerous to life and health (IDLH) 5. Permissible exposure limit (PEL) 6. Threshold limit value – short-term exposure limit (TLV-STEL) 7. Threshold limit value – ceiling (TLV-C) 8. Solubility 9. Poison – a substance that causes injury, illness, or death 10. Toxic – harmful nature related to amount and concentration

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ALS - 3.2.

NFPA 473 5.4.1(6)

Evaluating the Progress and Effectiveness of Medical Care

Given examples of hazardous materials/WMD incidents with exposed patients, the ALS level responder shall evaluate the progress and effectiveness of the medical care provided at a hazardous materials/WMD incident, to ensure that the overall incident response objectives, along with patient care goals, are being met.

ALS - 3.2.1.

NFPA 473 5.4.1(6)a

Locate and track all exposed patients at a hazardous materials/WMD incident, from triage and treatment to transport to the appropriate hospital.

ALS - 3.2.2.

NFPA 473 5.4.1(6)b

Review the incident objectives at periodic intervals to ensure that patient care is being carried out within the overall incident response plan.

ALS - 3.2.3.

NFPA 473 5.4.1(6)c

Ensure that the incident command system forms are completed, along with the patient care forms required by the AHJ, during the course of the incident.

ALS - 3.2.4.

NFPA 473 5.4.1(6)d

Evaluate the need for trained and qualified EMS personnel, medical equipment, transport units, and other supplies, including antidotes based on the scope and duration of the incident.

ALS - 3.3.

NFPA 473 5.4.2*

Decontaminating Exposed Patients.

Given the emergency response plan and SOPs developed by the AHJ and given examples of hazardous materials/WMD incidents with exposed patients, the ALS level responder shall do as follows:

ALS - 3.3.1.

NFPA 473 5.4.2(1)

Given the emergency response plan and SOPs developed by the AHJ, identify and evaluate the patient decontamination activities performed prior to accepting responsibility for and transferring care of exposed patients.

ALS - 3.3.2.

NFPA 473 5.4.2(2)

Determine the need and location for patient decontamination, including mass-casualty decontamination, in the event none has been performed prior to arrival of EMS personnel.

ALS - 3.3.2.1.

NFPA 473 5.4.2(2)a

Given the emergency response plan and SOPs developed by the AHJ, identify and evaluate the patient decontamination activities performed prior to accepting responsibility for and transferring care of exposed patients; identify sources of information for determining the appropriate decontamination procedure and how to access those resources in a hazardous materials/WMD incident.

<p>ALS - 3.3.2.2. NFPA 473 5.4.2(2)b</p>	<p>Given the emergency response plan and SOPs developed by the AHJ, identify and evaluate the patient decontamination activities performed prior to accepting responsibility for and transferring care of exposed patients.</p>
<p>ALS - 3.3.2.3. NFPA 473 5.4.2(2)c</p>	<p>Given the emergency response plan and SOPs provided by the AHJ, identify the supplies and equipment required to set up and implement technical or mass-casualty decontamination operations for ambulatory and non-ambulatory patients.</p>
<p>ALS - 3.3.2.4. NFPA 473 5.4.2(2)d</p>	<p>Given the emergency response plan and SOPs developed by the AHJ, identify the procedures, equipment, and safety precautions for securing evidence during decontamination operations at hazardous materials/WMD incidents.</p>
<p>ALS - 3.3.2.5. NFPA 473 5.4.2(2)e</p>	<p>Identify procedures, equipment, and safety precautions for handling tools, equipment, weapons, and law enforcement and K-9 search dogs brought to the decontamination corridor at hazardous materials/WMD incidents.</p>
<p>ALS - 3.3.2.6. NFPA 473 5.4.2(2)f</p>	<p>Identify procedures, equipment, and safety precautions for communicating with critically, urgently, and potentially exposed patients, and population prioritization and management techniques.</p>
<p>ALS - 3.3.2.7. NFPA 473 5.4.2(2)g</p>	<p>Determine the threat of cross contamination to all responders and patients by completing the following tasks:</p> <ol style="list-style-type: none"> 1. Identify hazardous materials/WMD with a high risk of cross contamination. 2. Identify hazardous materials/WMD agents with a low risk of cross contamination. 3. Describe how the physical state of the hazardous materials/WMD provides clues to its potential for secondary contamination, when the exact identity of the hazardous materials/WMD is not known.
<p>ALS - 3.4. NFPA 473 5.4.3</p>	<p>Evaluating the Need for Medical Supplies</p> <p>Given examples of single-patient and multi-casualty hazardous materials/WMD incidents, the ALS level responder shall determine if the available medical equipment, transport units, and other supplies, including antidotes, will meet or exceed expected patient care needs throughout the duration of the incident.</p>
<p>ALS - 3.5. NFPA 473 5.4.4</p>	<p>Evidence Preservation</p> <p>Given examples of hazardous materials/WMD incidents where criminal acts are suspected, the ALS level responder shall make every attempt to preserve evidence during the course of delivering patient care.</p>

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ALS - 3.5.1.

NFPA 473 5.4.4(1)

Determine if the incident is potentially criminal in nature and cooperate with the law enforcement agency having investigative jurisdiction.

ALS - 3.5.2.

NFPA 473 5.4.4(2)

Identify the unique aspects of criminal hazardous materials/WMD incidents, including crime scene preservation, evidence preservation, and destruction of potential evidence found on medical patients, and/or the destruction of evidence during the decontamination process.

ALS - 3.5.3.

NFPA 473 5.4.4(3)

Ensure that any information regarding suspects, sequence of events during a potential criminal act, or observations made based on patient presentation or during patient assessment are documented and communicated and passed on to the law enforcement agency having investigative jurisdiction.

ALS - 3.6.

NFPA 473 5.4.5

Medical Support at Hazardous Materials/WMD Incidents.

Given the emergency response plan and SOPs developed by the AHJ and examples of various hazardous materials/WMD incidents, the ALS level responder shall describe the procedures for performing medical support of hazardous materials/WMD incident response personnel.

ALS - 3.6.1.

NFPA 473 5.4.5(1)

The ALS level responder responsible for pre-entry medical monitoring shall obtain hazard and toxicity information on the released substance from the designated hazardous materials technical reference resource or other reliable sources of information at the scene. The following information shall be conveyed to the entry team, incident safety officer, hazardous materials officer, other EMS personnel at the scene, and any other responders responsible for the health and well-being of those personnel operating at the scene:

1. Chemical name
2. Hazard class
3. Hazard and toxicity information
4. Applicable decontamination methods and procedures
5. Potential for secondary contamination
6. Procedure for transfer of patients from the constraints of the incident to the emergency medical system
7. Prehospital management of medical emergencies and exposures, including antidote administration

ALS - 3.6.2.

NFPA 473 5.4.5(2)

The ALS level responder shall evaluate the pre-entry health status of hazardous materials/WMD responders prior to donning PPE by performing the following tasks:

1. Record a full set of vital signs
2. Record body weight measurements
3. Record general health observations

ALS - 3.6.3.	<p>The ALS level responder shall determine the medical fitness of those personnel charged with donning chemical protective clothing, using the criteria set forth in the emergency action plan (EAP) and the SOP developed by the AHJ. Consideration shall be given to excluding responders if they do not meet the following criteria prior to working in chemical protective clothing:</p> <ol style="list-style-type: none"> 1. Core body temperature: hypothermia/hyperthermia 2. Blood pressure: hypotension/hypertension 3. Heart rate: bradycardia/tachycardia 4. Respiratory rate: bradypnea/tachypnea
ALS - 3.6.4.	<p>The ALS level responder shall determine how the following factors influence heat stress on hazardous materials/WMD response personnel:</p> <ol style="list-style-type: none"> 1. Baseline level of hydration 2. Underlying physical fitness 3. Environmental factors 4. Activity levels during the entry 5. Level of PPE worn 6. Duration of entry 7. Cold stress
ALS - 3.6.5.	<p>Given examples of various hazardous materials/WMD incidents requiring the use of chemical protective ensembles, the ALS level responder shall complete the following tasks:</p> <ol style="list-style-type: none"> 1. Demonstrate the ability to set up and operate a medical monitoring station. 2. Demonstrate the ability to recognize the signs and symptoms of heat stress, heat exhaustion, and heat stroke. 3. Determine the ALS needs for responders exhibiting the effects of heat stress, cold stress, and heat exhaustion. 4. Describe the medical significance of heat stroke and the importance of rapid transport to an appropriate medical receiving facility.
ALS - 3.6.6.	<p>Given a simulated hazardous materials/WMD incident, the ALS level responder shall demonstrate documentation of medical monitoring activities.</p>
ALS - 3.6.7.	<p>The ALS level responder shall evaluate all team members after decontamination and PPE removal, using the following criteria:</p> <ol style="list-style-type: none"> 1. Pulse rate — done within the first minute 2. Pulse rate — 3 minutes after initial evaluation 3. Temperature 4. Body weight 5. Blood pressure 6. Respiratory rate

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ALS - 3.6.8.

NFPA 473 5.4.5(8)

The ALS level responder shall recommend that any hazardous materials team member exhibiting any of the following signs be prohibited from redonning chemical protective clothing:

1. Heat stress or heat exhaustion
2. Pulse rate: tachycardia/bradycardia
3. Core body temperature: hyperthermia/hypothermia
4. Recovery heart rate with a trend toward normal rate and rhythm
5. Blood pressure: hypertension/hypotension
6. Weight loss of >5 percent
7. Signs or symptoms of extreme heat exhaustion or heat stroke, which requires transport by ALS ambulance to the appropriate hospital

ALS - 3.6.9.

NFPA 473 5.4.5(9)

The ALS level responder shall notify immediately the appropriate persons designated by the emergency response plan if a team member requires significant medical treatment or transport (arranged through the appropriate designee identified by the emergency response plan).

ALS 4. - Terminating the Incident

ALS - 4.1.

NFPA 473 5.5

Reporting and Documenting the Incident

Upon termination of the hazardous materials/WMD incident, the ALS level responder shall complete the reporting, documentation, and EMS termination activities as required by the local emergency response plan or the organization's SOPs.

ALS - 4.1.1.

NFPA 473 5.5(1)

Identify the reports and supporting documentation required by the emergency response plan or SOPs.

ALS - 4.1.2.

NFPA 473 5.5(2)

Demonstrate completion of the reports required by the emergency response plan or SOPs.

ALS - 4.1.3.

NFPA 473 5.5(3)

Describe the importance of personnel exposure records.

ALS - 4.1.4.

NFPA 473 5.5(4)

Describe the importance of debriefing records.

ALS - 4.1.5.

NFPA 473 5.5(5)

Describe the importance of critique records.

ALS - 4.1.6.	Identify the steps in keeping an activity log and exposure records. NFPA 473 5.5(6)
ALS - 4.1.7.	Identify the steps to be taken in compiling incident reports that meet federal, state, local, and organizational requirements. NFPA 473 5.5(7)
ALS - 4.1.8.	Identify the requirements for compiling personal protective equipment logs. NFPA 473 5.5(8)
ALS - 4.1.9.	Identify the requirements for filing documents and maintaining records, as follows: NFPA 473 5.5(9)
ALS - 4.1.9.1.	List the information to be gathered regarding the exposure of all patient(s) and describe the reporting procedures, including the following: <ol style="list-style-type: none"> 1. Detailed information on the substances released 2. Pertinent information on each patient treated or transported 3. Routes, extent, and duration of exposures 4. Actions taken to limit exposure 5. Decontamination activities
ALS - 4.1.9.2.	Identify the methods used by the AHJ to evaluate transport units for potential contamination and the process and locations available to decontaminate those units. NFPA 473 5.5(9)b

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